UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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WAGNER, MURABITO & HAO LLP
Two North Market Street
Third Floor
San Jose, CA 95113

NGUYEN, KEVIN M

ART UNIT	PAPER NUMBER
2674	

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>28 February 2005</u>.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-29</u> is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-29</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a) ☐ All　b) ☐ Some * c) ☐ None of:

　　　1. ☐ Certified copies of the priority documents have been received.

　　　2. ☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
　　Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   This office action is made in response to applicant's remarks/arguments filed on

02/28/2005. Claims 1-29 are currently pending in the application. An action follows

below:

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of
> making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the
> art to which it pertains, or with which it is most nearly connected, to make and use the same and shall
> set forth the best mode contemplated by the inventor of carrying out his invention.

2.   Claims 1-29 are rejected under 35 U.S.C. 112, first paragraph, as containing

subject matter which was not described in the specification in such a way as to

reasonably convey to one skilled in the relevant art that the inventor(s), at the time the

application was filed, had possession of the claimed invention.

3.   As per claims above, the application does not disclose the limitations "a fixed

pixel border having a predetermined width", as recited in claims 1-3, 10, 13, 14, 19 and

20, "a fixed dimension of n rows and m columns," recited in claim 25.

4.   The entire application, especially page 19, lines 11-12, as indicated by the

applicant, only discloses that "the pixel border region 312 is arbitrary." Page 21, lines

15-16, "in this example, x=2, but could be any width in accordance with the present

invention." Page 18, lines 14-15, region 314 (fig. 7) is the frame buffer pixel region and

contains a matrix of discrete pixels oriented in n rows and m columns according to a

variety of display dimensions and formats."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1-5, 8, 13-16, 19-23, 25, 26, 28, 29 are rejected under 35 U.S.C. 103(a)

as being unpatentable over Taniguchi in view of Yokota et al.

6.   As to claims 1, 25, Taniguchi teaches a display unit 11 (fig. 1) comprising a

passive matrix of pixels yd0-yd203 rows (fig. 1) and xd0-xd655 columns (fig. 1) of

discrete pixels, a XD driver (fig. 1), a YD driver (fig. 1), an inherent display data

memory;

a pixel border comprises non-display regions B having a predetermined width B1,

B2, B3, B4, B5, B6 (fig. 1), the non-display regions surrounding the effective display

region A (fig. 1);

a plurality of pixels (non-display regions B1, B2, B3, B4, B5, B6, fig. 1) is

controlled between on (white state) and off state (black state) (see col. 5, lines 6-15).

Accordingly, Taniguchi teaches all of the claimed limitations of claims 1, 25,

except for a plurality of pixels which are uniformly controlled between an on and an off

state by a common threshold signal.

However, Yokota et al teaches a display unit comprising any dot was controlled

by the voltage obtained by subtracting the potential of the segment signal from the

potential of the common signal, exceeds the threshold value of the liquid crystal (col. 14, lines 47-50).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Taniguchi's control circuit including controlling by a common threshold signal, in view of the teaching in Yokota's reference because this would prevent crosstalk of the image being displayed as taught by Yokota (col. 3, lines 41-42), while fabricating the liquid crystal display controller at low cost as taught by Yokota (col. 3, lines 55-56).

7.   As to claim 13, Taniguchi teaches a display unit 11 (fig. 1) comprising a passive matrix of pixels yd0-yd203 rows (fig. 1) and xd0-xd655 columns (fig. 1) of discrete pixels, XD drivers (fig. 1), YD drivers (fig. 1), an inherent display data memory;

a pixel border comprises non-display regions B having a predetermined width B1, B2, B3, B4, B5, B6 (fig. 1), the non-display regions surrounding the effective display region A (fig. 1);

a plurality of pixels (non-display regions B1, B2, B3, B4, B5, B6, fig. 1) is controlled between on (white state) and off state (black state) (see col. 5, lines 6-15);

Accordingly, Taniguchi teaches all of the claimed limitations of claim 13, except for "a contrast adjustment circuit for adjusting voltage levels supplied to said row and column drivers to adjust the contrast of said image of said passive matrix, wherein said contrast adjustment circuit is also operable to adjust said common threshold signal to match the contrast of said passive matrix."

However, Yokota et al teaches, as noting in Fig. 1 and Fig. 14A, an instruction register 5 (fig. 1) is detailed in fig. 14A comprising a contrast-adjust-circuit 39 (fig. 14A, col. 13, line 64 through col. 14, lines 3) coupling to a common driver 16 (fig. 1) via a common shift register 15 (fig. 1). The contrast-adjust-circuit 39 couples to segment driver 14 (fig. 1) via a liquid crystal display driver voltage selector 19 (fig. 1) and via a liquid crystal drive bias circuit 18 (fig. 1) which was controlled by the voltage obtained by subtracting the potential of the segment signal from the potential of the common signal, exceeds the threshold value of the liquid crystal (col. 14, lines 47-50).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Taniguchi's control circuit including controlling a contrast by a common threshold signal, in view of the teaching in Yokota's reference because this would improve the quality of the border image being displayed at taught by Yokota (col. 3, lines 41-42), while fabricating the controller at low cost as taught by Yokota (col. 3, lines 55-56).

8.   As to claim 19, Taniguchi teaches a display unit 11 (fig. 1) comprising a passive matrix of pixels yd0-yd203 rows (fig. 1) and xd0-xd655 columns (fig. 1) of discrete pixels, XD drivers (fig. 1), YD drivers (fig. 1), an inherent display data memory;

a pixel border comprises non-display regions B having a predetermined width B1, B2, B3, B4, B5, B6 (fig. 1), the non-display regions surrounding the effective display region A (fig. 1);

a plurality of pixels (non-display regions B1, B2, B3, B4, B5, B6, fig. 1) is controlled between on (white state) and off state (black state) (see col. 5, lines 6-15).

Accordingly, Taniguchi teaches all of the claimed limitations of claim 19, except

for a processor, a bus, a memory unit, and a user input device, and a plurality of pixels

which are uniformly controlled between an on and an off state by a common threshold

signal.

However, Yokota et al teach a portable electronic device (fig. 15A) comprising a

processor 3 (fig. 15A), bus (wires 51, 54, fig. 15A), a memory unit 7 (fig. 1), a user input

device 52 (figure 15A, col. 15, lines 1-14), and any dot was controlled by the voltage

obtained by subtracting the potential of the segment signal from the potential of the

common signal, exceeds the threshold value of the liquid crystal (col. 14, lines 47-50).

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time of the invention to modify Taniguchi's control circuit including the processor,

bus, the memory unit, the user input device and the border pixel controlling by a

common threshold signal, in view of the teaching in Yokota's reference because this

would prevent crosstalk of the image being displayed at taught by Yokota (col. 3, lines

41-42), while fabricating the liquid crystal display controller at low cost as taught by

Yokota (col. 3, lines 55-56).

As to claims 2, 20, 28, Yokota et al teaches, as noting in Fig. 1 and Fig. 14A, an

instruction register 5 (fig. 1) is detailed in fig. 14A comprising a contrast-adjust-circuit 39

(fig. 14A, col. 13, line 64 through col. 14, lines 3) coupling to a common driver 16 (fig. 1)

via a common shift register 15 (fig. 1). The contrast-adjust-circuit 39 couples to segment

driver 14 (fig. 1) via a liquid crystal display driver voltage selector 19 (fig. 1) and via a

liquid crystal drive bias circuit 18 (fig. 1) which was controlled by the voltage obtained by

subtracting the potential of the segment signal from the potential of the common signal,

exceeds the threshold value of the liquid crystal (col. 14, lines 47-50).

As to claims 3, 14, 21, 29, Taniguchi teaches a foreground comprising the

desired characters or figures displayed on the screen 11a can be seen from the front

side of the screen 11a (col. 5, lines 34-37). A white background comprises when the

display screen 11a is of the normally white type, on the other hand, the non-display

region B1 becomes bright so that the black frame disappears (col. 5, lines 47-49).

As to claims 4, 5, 15, 22, Taniguchi teaches a passive matrix is negative mode

liquid crystal display 11 technology (col. 3, line 60) is super twisted nematic.

As to claims 8, 16, 23, Yokota et al teaches the voltage (a driver signal and a

single control signal) obtained by subtracting the potential of the segment signal from

the potential of the common signal, exceeds the threshold value of the liquid crystal (col.

14, lines 47-50).

As to claim 26, Taniguchi teaches the pixel border comprises non-display regions

B having a predetermined width B1, B2, B3, B4, B5, B6 (fig. 1).

As to claims 11, 17, 27, Taniguchi teaches all the subject matter claimed

limitations with the exception of particular size of "the predetermined width is two

pixels." Absent a showing of criticality it would have been within the level of skill in the

art and obvious to one having ordinary skill to engineering design the size of a well-

known element is normally not directed toward patentable subject matter as desired as

was judicially recognized in re Rose, 105 USPQ 237 (CCPA 1955) and in re Reven, 156

USPQ 679 (CCPA 1968).

As to claims 12, 18 and 24, Taniguchi teaches all the subject matter claimed limitations with the exception of particular size of "said passive matrix comprises 160 rows and 160 columns of discrete pixels." Absent a showing of criticality it would have been within the level of skill in the art and obvious to one having ordinary skill to engineering design the size of a well-known element is normally not directed toward patentable subject matter as desired as was judicially recognized in re Rose, 105 USPQ 237 (CCPA 1955) and in re Reven, 156 USPQ 679 (CCPA 1968).

9.   Claims 6, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi in view of Yokota, and further in view of Morimoto (previously cited, US 6,535,188).

As to claim 6, Taniguchi and Yokota teach all of the claimed limitations of claim 1, except for "the passive matrix is electronic ink technology."

However, Morimoto teaches a liquid crystal display device including electronic ink 12 (figure 2, column 5, lines 19-20).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Taniguchi's display device including the electric ink technology in view of the teaching in Morimoto's reference because this would reduce the thickness fluctuation of liquid crystal layer and avoid an occurrence of a portion of a display image deterioration such as a deviation of contrast ratio (column 3, lines 25-28 of Morimoto).

As to claims 9, 10, Morimoto teaches each pixel including red, green, blue sub-pixel sharing a common row and spanning three columns (see figure 1).

10.   Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi

in view of Yokota, and further in view of Colgan et al (previously cited, US 6,323,834).

As to claim 7, Taniguchi and Yokota teach all of the claimed limitations of claim

1, except for the passive matrix is microelectromechanical system technology.

However, Colgan et al teaches the passive matrix display 154, deformable

mirrors 133 (figure 22, column 12, lines 23-26).

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time of the invention to modify Taniguchi's display device including the passive

matrix display 154, deformable mirrors 133, in view of the teaching in Colgan's

reference because this would provide high reflectivity and good contrast ration while

reducing manufacturing costs (column 7, lines 52 and line 63 of Colgan et al).

Response to Arguments

11.   Applicant's arguments filed 02/28/2005 have been fully considered but they are

not persuasive.

12.   In response to applicant's argument that "for independent claim 25, applicant

respectfully asserts that the pixel border region is not fixed at page 2, for independent

claims 1, 13, and 19, applicants respectfully asserts that there is sufficient support for a

"fixed" pixel border, and a pixel border of "fixed" dimension, at page 3. In response,

examiner disagrees because absent a showing of criticality it would have been within

the level of skill in the art and obvious to one having ordinary skill to engineering design

changing the shape and size of a well-known element is normally not directed toward

patentable subject matter as desired as was judicially recognized. See In re Rose, 105

USPQ 237 (CCPA 1955). See <u>In re Reven</u>, 156 USPQ 679 (CCPA 1968). Therefore,

the rejection under 35 U.S.C. 112, first paragraph, is maintained.

13.   In response to applicant's argument that claims 1, 13, 19, 25 recite "a pixel

border that surrounds the passive matrix is uniformly controlled between an on and an

off state by a common threshold signal."

This argument is not persuasive because Taniguchi teaches a display unit 11

(fig. 1) comprising a passive matrix of a pixel border which includes non-display regions

B having a predetermined width B1, B2, B3, B4, B5, B6 (fig. 1), the non-display regions

surrounding the effective display region A (fig. 1).

Yokota et al teach "to produce a display on the central 2 rows on the screen, the

shifting operation is started from F/F9 and is ended at F/F24. In this case, the flip flops

F/F1 to F/F9 and F/F25 to F/F32 are reset at all times, and are not shifted" (col. 9, lines

49-53). Thus, Yokota et at teach obviously the pixel border region based on a display on

the central on the screen.

Yokota et al further teach <u>any dot turns on</u> when the voltage obtained by

subtracting the potential of the segment signal from the potential of the common signal,

<u>exceeds</u> the threshold value of the liquid crystal (col. 14, lines 47-50). Thus, it is obvious

to provide <u>any dot turns off</u> when the voltage obtained by subtracting the potential of the

segment signal from the potential of <u>the common signal, not exceeds</u> the threshold

value of the liquid crystal.

Therefore, the modified teaching of Taniguchi's reference in view of the modified

teaching of Yokota's reference provide and establish the "substantial evidence" to

produce and result the claimed limitations "a pixel border pixel border that surrounds the

passive matrix is uniformly controlled by a common threshold signal."

For these reasons, the rejections based on Taniguchi and Yokota et al have

been maintained.

Conclusion

14.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

15.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kevin M. Nguyen whose telephone number is 571-272-

7697. The examiner can normally be reached on MON-THU from 8:00-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Patrick N. Edouard can be reached on 571-272-7603. The fax phone

number for the organization where this application or proceeding is assigned is 703-

872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the Patent Application Information Retrieval system, see

http://portal.uspto.gov/external/portal/pair. Should you have questions on access to the

Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197

(toll-free).

                                                          Kevin M. Nguyen
                                                          Patent Examiner
                                                          Art Unit 2674

KMN
April 15, 2005

                                        XIAO WU
                                   PRIMARY EXAMINER